

## Session Topic: Advanced Energy Technologies, Including Advanced, Clean Technologies for Fossil Fuels

**Amanda Vockerodt, Foreign Affairs Officer, Office of Global Change, DOS**

The United States has initiated and participates in a range of new technology initiatives designed to develop and deploy the best of current technologies and transformational new ones to support the multiple goals of improving energy security, promoting economic growth and development, reducing air pollution, mitigating greenhouse gases, and eradicating poverty in the nearer, mid, and longer-term.

### 1) Carbon Capture and Storage

#### **Case Study** | **Carbon Sequestration Leadership Forum**

The Carbon Sequestration Leadership Forum is a mid-term effort, and one of our key initiatives in stabilizing and reducing greenhouse gas levels over the mid to longer term. It focuses on developing technologies to capture and store carbon and prevent it from entering the atmosphere, while enabling countries such as the United States to continue to use abundant, inexpensive coal for an energy source. The CSLF has been a useful means to compare approaches and identify new ways of collaboration as we seek to expand the use of these technologies around the world.

*May 1-12 Point of contact on U.S. delegation: Amanda Vockerodt, Vockerodtap@state.gov*

**Lessons learned** | **Cooperation is key to facilitating the development of cost-effective techniques for capture and safe long-term storage of carbon dioxide, while making these technologies available internationally.**

**Obstacle confronted** | Lack of cost-effective techniques for capture and safe long-term storage of carbon dioxide.

**Next Steps** | To make these technologies broadly available internationally, and to identify and address wider issues relating to carbon capture and storage. This could include promoting the appropriate technical, political, and regulatory environments for the development of such technology.

### 2) Producing Electricity and Hydrogen from Coal

#### **Case Study** | **FutureGen**

FutureGen explores the means to address greenhouse gas emissions from burning coal for fuel. Through this initiative, the U.S. and international partners in the public and private sectors are developing a \$1 billion, 10-year demonstration project to create the world's first coal-based, zero-emissions electricity and hydrogen power plant. Once developed, the plant will produce energy, separate and capture carbon, and produce hydrogen.

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**Lessons learned** | **The success of FutureGen will assure that coal, a low-cost, abundant, and geographically diverse energy resource, continues to globally supply exceptionally clean energy.**

**Obstacle confronted** | Lack of technical and economic feasibility of producing electricity and hydrogen from coal, while capturing and sequestering the carbon dioxide generated in the process.

**Next Steps** | Continue work to build the world's first integrated sequestration and hydrogen production research power plant; validate the technical feasibility and the economic viability of zero emissions energy from coal; and in the process gain broad acceptance of this concept as one solution for future energy and environmental security.

### 3) Hydrogen Production, Storage, Transport, Distribution and Use

Case Study	<p><b><u>International Partnership for the Hydrogen Economy (IPHE)</u></b></p> <p>The United States believes that the establishment of the International Partnership for the Hydrogen Economy (IPHE) will create a mechanism to organize and implement effective, efficient, and focused research, and to develop and deploy activities that advance hydrogen and fuel cell programs. The coordination instituted through the IPHE will leverage limited resources and bring together world's best intellects and talents to solve difficult challenges to making the hydrogen economy a reality.</p> <p><i>May 1-12 Point of contact on U.S. delegation: Amanda Vockerodt, Vockerodtap@state.gov</i></p>
Lessons learned	<p><b>Building a safe and efficient worldwide infrastructure for hydrogen production, storage, transport, distribution and use is a multinational task that requires careful planning and cooperation.</b></p>
Obstacle confronted	<p>Lack of a mechanism to organize and implement effective, efficient, and focused research, and to develop and deploy activities that advance hydrogen and fuel cell programs.</p>
Next Steps	<p>Working together through this partnership, we can build on the robust efforts taking place around the globe, and bring that collective effort to bear on one of the greatest challenges ahead of us -- charting the path to the hydrogen economy. The United States believes that partnerships that leverage scarce resources, develop technology standards, and foster private-public technology and infrastructure collaboration can more easily overcome the technological and institutional barriers that can inhibit the development of a cost-competitive, standardized, widely accessible and safe hydrogen economy. We invite interested nations to join us in this effort.</p>